

Commercial Space Transportation, FAA, DOT

§ 450.3

employees and assignees, or any of them, from and against liability, loss or damage arising out of claims for Bodily Injury, including Death, or Property Damage, sustained by Space Flight Participant, resulting from Licensed/Permitted Activities, regardless of fault, except to the extent that, as provided in section 6(b) of this Agreement, claims result from willful misconduct of the United States or its agents.

7. MISCELLANEOUS

(a) Nothing contained herein shall be construed as a waiver or release by the United States of any claim by an employee the United States, respectively, including a member of the Armed Forces of the United States, for Bodily Injury or Property Damage, resulting from Licensed/Permitted Activities.

(b) Notwithstanding any provision of this Agreement to the contrary, any waiver, release, assumption of responsibility or agreement to hold harmless herein shall not apply to claims for Bodily Injury, including Death, or Property Damage resulting from willful misconduct of any of the Parties, the Contractors, Subcontractors, and agents of the United States, and Space Flight Participant.

(c) This Agreement shall be governed by and construed in accordance with United States Federal law.

IN WITNESS WHEREOF, the Parties to this Agreement have caused the Agreement to be duly executed by their respective duly authorized representatives as of the date written above.

I [name of Space Flight Participant] have read and understand this agreement and agree that I am bound by it.

Space Flight Participant

Signature: _____
Printed Name: _____

Federal Aviation Administration of the Department of Transportation on Behalf of the United States Government

By: _____
Its: _____

Associate Administrator for Commercial Space Transportation

PARTS 441–449 [RESERVED]

PART 450—FINANCIAL RESPONSIBILITY

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AUTHORITY: 49 U.S.C. 70101–70121; 49 CFR 1.47.

SOURCE: Docket No. FAA–1999–6265, 65 FR 56699, Sept. 19, 2000, unless otherwise noted.

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Subpart A—Financial Responsibility for Licensed Reentry Activities

§ 450.1 Scope of part; basis.

This part sets forth financial responsibility and allocation of risk requirements applicable to commercial space reentry activities that are authorized to be conducted under a license issued pursuant to this subchapter.

§ 450.3 Definitions.

(a) For purposes of this part—

Bodily injury means physical injury, sickness, disease, disability, shock, mental anguish, or mental injury sustained by any person, including death.

Contractors and subcontractors means those entities that are involved at any tier, directly or indirectly, in licensed reentry activities, and includes suppliers of property and services, and the component manufacturers of a reentry vehicle or payload. Contractors and subcontractors include those entities as defined in § 440.3(a)(2) of this chapter involved in licensed launch activities associated with a particular reentry.

Customer means

(1) A person who procures reentry services from a licensee or launch services associated with a particular reentry;

(2) Any person to whom the customer has sold, leased, assigned or otherwise transferred its rights in the payload (or any part thereof), to be reentered by the licensee, including a conditional sale, lease, assignment, or transfer of rights.

(3) Any person who has placed property on board the payload for reentry or payload services; and

(4) Any person to whom the customer has transferred its rights to reentry services.

Federal range facility means a Government-owned installation at which launches or reentries take place.

Financial responsibility means statutorily required financial ability to satisfy liability as required under 49 U.S.C. 70101–70121.

Government personnel means employees of the United States, its agencies, and its contractors and subcontractors, involved in reentry services for licensed reentry activities or launch services for licensed launch activities associated with a particular reentry. Employees of the United States include members of the Armed Forces of the United States.

Hazardous operations means activities, processes, and procedures that, because of the nature of the equipment, facilities, personnel, or environment involved or function being performed, may result in bodily injury or property damage.

Liability means a legal obligation to pay claims for bodily injury or property damage resulting from licensed reentry activities.

License means an authorization to conduct licensed reentry activities, issued by the Office under this subchapter.

Licensed launch activities means the launch of a launch vehicle as defined in a regulation or license issued by the Office and carried out pursuant to a launch license.

Licensed reentry activities means the reentry of a reentry vehicle, including a reusable launch vehicle (RLV), as defined in a regulation or license issued

by the Office and carried out pursuant to a license.

Maximum probable loss (MPL) means the greatest dollar amount of loss for bodily injury or property damage that is reasonably expected to result from licensed reentry activities;

(1) Losses to third parties, excluding Government personnel and other launch or reentry participants employees involved in licensed reentry activities, that are reasonably expected to result from licensed reentry activities are those having a probability of occurrence on the order of no less than one in ten million.

(2) Losses to Government property and Government personnel, as defined in this section, that are reasonably expected to result from licensed reentry activities are those having a probability of occurrence on the order of no less than in one hundred thousand.

Office means the Associate Administrator for Commercial Space Transportation of the Federal Aviation Administration, U.S. Department of Transportation.

Property damage means partial or total destruction, impairment, or loss of tangible property, real or personal.

Regulations means the Commercial Space Transportation Licensing Regulations, codified at 14 CFR Ch. III.

Third party means:

(1) Any person other than:

(i) The United States, its agencies, and its contractors and subcontractors involved in reentry services for licensed reentry activities or launch services for licensed launch activities associated with a particular reentry;

(ii) The licensee and its contractors and subcontractors involved in reentry services for licensed reentry activities or launch services for licensed launch activities associated with a particular reentry; and

(iii) The customer and its contractors and subcontractors involved in reentry services for licensed reentry activities or launch services for licensed launch activities associated with a particular reentry.

(2) Government personnel, as defined in this section, are third parties.

United States means the United States Government, including its agencies.

(b) Except as otherwise provided in this section, any term used in this part and defined in 49 U.S.C. 70101-70121 or in § 401.5 of this chapter shall have the meaning contained therein.

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

§ 450.5 General.

(a) No person shall commence or conduct reentry activities that require a license unless that person has obtained a license and fully demonstrated compliance with the financial responsibility and allocation of risk requirements set forth in this part.

(b) The Office shall prescribe the amount of financial responsibility a licensee is required to obtain and any additions to or modifications of the amount in a license order issued concurrent with or subsequent to the issuance of a license.

(c) Demonstration of financial responsibility under this part shall not relieve the licensee of ultimate responsibility for liability, loss, or damage sustained by the United States resulting from licensed reentry activities, except to the extent that:

(1) Liability, loss, or damage sustained by the United States results from willful misconduct of the United States or its agents;

(2) Covered claims of third parties for bodily injury or property damage arising out of any particular reentry exceed the amount of financial responsibility required under § 450.9(c) of this part and do not exceed \$1,500,000,000 (as adjusted for inflation occurring after January 1, 1989), above such amount, and are payable pursuant to 49 U.S.C. 70113 and § 450.19 of this part. Claims of employees of entities listed in paragraphs (1)(ii) and (iii) of the definition of "third party" in § 450.3(a) of this part for bodily injury or property damage are not covered claims;

(3) Covered claims for property loss or damage exceed the amount of financial responsibility required under § 450.9(e) of this part and do not result from willful misconduct of the licensee; or

(4) The licensee has no liability for covered claims by third parties for bodily injury or property damage arising out of any particular reentry that ex-

ceed \$1,500,000,000 (as adjusted for inflation occurring after January 1, 1989) above the amount of financial responsibility required under § 450.9(c) of this part.

(d) A licensee's failure to comply with the requirements in this part may result in suspension or revocation of a license, and subjects the licensee to civil penalties as provided in part 405 of this chapter.

§ 450.7 Determination of maximum probable loss.

(a) The Office shall determine the maximum probable loss (MPL) from covered claims by a third party for bodily injury or property damage, and the United States, its agencies, and its contractors and subcontractors for covered property damage or loss, resulting from licensed reentry activities. The maximum probable loss determination forms the basis for financial responsibility requirements issued in a license order.

(b) The Office issues its determination of maximum probable loss no later than ninety days after a licensee or transferee has requested a determination and submitted all information required by the Office to make the determination. The Office shall consult with Federal agencies that are involved in, or whose personnel or property are exposed to risk of damage or loss as a result of, licensed reentry activities before issuing a license order prescribing financial responsibility requirements and shall notify the licensee or transferee if interagency consultation may delay issuance of the MPL determination.

(c) Information requirements for obtaining a maximum probable loss determination are set forth in appendix A to this part. Any person requesting a determination of maximum probable loss must submit information in accordance with Appendix A requirements, unless the Office has waived requirements. In lieu of submitting required information, a person requesting a maximum probable loss determination may designate and certify certain information previously submitted for a prior determination as complete, valid, and equally applicable to its current request. The requester is

responsible for the continuing accuracy and completeness of information submitted under this part and shall promptly report any changes in writing.

(d) The Office shall amend a determination of maximum probable loss required under this section at any time prior to completion of licensed reentry activities as warranted by supplementary information provided to or obtained by the Office after the MPL determination is issued. Any change in financial responsibility requirements as a result of an amended MPL determination shall be set forth in a license order.

(e) The Office may make a determination of maximum probable loss at any time other than as set forth in paragraph (b) of this section, upon request by any person.

§ 450.9 Insurance requirements for licensed reentry activities.

(a) As a condition of each reentry license, the licensee must comply with insurance requirements set forth in this section and in a license order issued by the Office, or otherwise demonstrate the required amount of financial responsibility.

(b) The licensee must obtain and maintain in effect a policy or policies of liability insurance, in an amount determined by the Office under paragraph (c) of this section, that protects the following persons as additional insureds to the extent of their respective potential liabilities against covered claims by a third party for bodily injury or property damage resulting from licensed reentry activities:

(1) The licensee, its customer, and their respective contractors and subcontractors, and the employees of each, involved in licensed reentry activities or in licensed launch activities associated with a particular reentry;

(2) The United States, its agencies, and its contractors and subcontractors involved in licensed reentry activities or in licensed launch activities associated with a particular reentry; and

(3) Government personnel.

(c) The Office shall prescribe for each licensee the amount of insurance required to compensate the total of covered third-party claims for bodily in-

jury or property damage resulting from licensed reentry activities. Covered third-party claims include claims by the United States, its agencies, and its contractors and subcontractors for damage or loss to property other than property for which insurance is required under paragraph (d) of this section. The amount of insurance required is based upon the Office's determination of maximum probable loss; however, it will not exceed the lesser of:

(1) \$500 million; or

(2) The maximum liability insurance available on the world market at a reasonable cost, as determined by the Office.

(d) The licensee must obtain and maintain in effect a policy or policies of insurance, in an amount determined by the Office under paragraph (e) of this section, that covers claims by the United States, its agencies, and its contractors and subcontractors involved in licensed reentry activities resulting from licensed reentry activities. Property covered by this insurance must include all property owned, leased, or occupied by, or within the care, custody, or control of, the United States and its agencies, and its contractors and subcontractors involved in licensed reentry activities, at a Federal range facility. Insurance must protect the United States and its agencies, and its contractors and subcontractors involved in licensed reentry activities.

(e) The Office shall prescribe for each licensee the amount of insurance required to compensate claims for property damage under paragraph (d) of this section resulting from licensed reentry activities in connection with any particular reentry. The amount of insurance is based upon a determination of maximum probable loss; however, it will not exceed the lesser of:

(1) \$100 million; or

(2) The maximum available on the world market at a reasonable cost, as determined by the Office.

(f) In lieu of a policy of insurance, a licensee may demonstrate financial responsibility in another manner meeting the terms and conditions applicable to insurance as set forth in this part. The licensee must describe in detail the method proposed for demonstrating financial responsibility and how it

assures that the licensee is able to cover claims as required under this part.

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

§ 450.11 Duration of coverage; modifications.

(a) Insurance coverage required under § 450.9, or other form of financial responsibility, shall attach upon commencement of licensed reentry activities, and remain in full force and effect as follows:

(1) For ground operations, until completion of licensed reentry activities at the reentry site; and

(2) For other licensed reentry activities, thirty days from initiation of reentry flight; however, in the event of an abort that results in the reentry vehicle remaining on orbit, insurance shall remain in place until the Office's determination that risk to third parties and Government property as a result of licensed reentry activities is sufficiently small that financial responsibility is no longer necessary, as determined by the Office through the risk analysis conducted to determine MPL and specified in a license order.

(b) Financial responsibility required under this part may not be replaced, canceled, changed, withdrawn, or in any way modified to reduce the limits of liability or the extent of coverage, nor expire by its own terms, prior to the time specified in a license order, unless the Office is notified at least 30 days in advance and expressly approves the modification.

§ 450.13 Standard conditions of insurance coverage.

(a) Insurance obtained under § 450.9 shall comply with the following terms and conditions of coverage:

(1) Bankruptcy or insolvency of an insured, including any additional insured, shall not relieve the insurer of any of its obligations under any policy.

(2) Policy limits shall apply separately to each occurrence and, for each occurrence to the total of claims arising out of licensed reentry activities in connection with any particular reentry.

(3) Except as provided in this paragraph herein, each policy must pay

claims from the first dollar of loss, without regard to any deductible, to the limits of the policy. A licensee may obtain a policy containing a deductible amount if the amount of the deductible is placed in an escrow account or otherwise demonstrated to be unobligated, unencumbered funds of the licensee, available to compensate claims at any time claims may arise.

(4) Each policy shall not be invalidated by any action or inaction of the licensee or any additional insured, including nonpayment by the licensee of the policy premium, and must insure the licensee and each additional insured regardless of any breach or violation of any warranties, declarations, or conditions contained in the policies by the licensee or any additional insured (other than a breach or violation by the licensee or an additional insured, and then only as against that licensee or additional insured).

(5) Exclusions from coverage must be specified.

(6) Insurance shall be primary without right of contribution from any other insurance that is carried by the licensee or any additional insured.

(7) Each policy must expressly provide that all of its provisions, except the policy limits, operate in the same manner as if there were a separate policy with and covering the licensee and each additional insured.

(8) Each policy must be placed with an insurer of recognized reputation and responsibility that either:

(i) Is licensed to do business in any State, territory, possession of the United States, or the District of Columbia; or

(ii) Includes in each of its policies of insurance obtained under this part a contract clause in which the insurer agrees to submit to the jurisdiction of a court of competent jurisdiction within the United States and designates an authorized agent within the United States for service of legal process on the insurer.

(9) Except as to claims resulting from the willful misconduct of the United States or its agents, the insurer shall waive any and all rights of subrogation against each of the parties protected by required insurance.

§ 450.15

14 CFR Ch. III (1–1–07 Edition)

(b) [Reserved]

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

§ 450.15 Demonstration of compliance.

(a) A licensee must submit evidence of financial responsibility and compliance with allocation of risk requirements under this part, as follows, unless a license order specifies otherwise due to the proximity of the licensee's intended date for commencement of licensed activities:

(1) The waiver of claims agreement required under § 450.17(c) of this part must be submitted at least 30 days before commencement of licensed launch activities involving the reentry licensee;

(2) Evidence of insurance must be submitted at least 30 days before commencement of licensed launch activities involving the reentry licensee;

(3) Evidence of financial responsibility in a form other than insurance, as provided under § 450.9(f) of this part, must be submitted at least 60 days before commencement of licensed launch activities involving the reentry licensee; and

(4) Evidence of renewal of insurance or other form of financial responsibility must be submitted at least 30 days in advance of its expiration date.

(b) Upon a complete demonstration of compliance with financial responsibility and allocation of risk requirements under this part, the requirements shall preempt any provisions in agreements between the licensee and an agency of the United States governing access to or use of United States reentry property or reentry services for licensed reentry activities which address financial responsibility, allocation of risk and related matters covered by 49 U.S.C. 70112, 70113.

(c) A licensee must demonstrate compliance as follows:

(1) The licensee must provide proof of insurance required under § 450.9 by:

(i) Certifying to the Office that it has obtained insurance in compliance with the requirements of this part and any applicable license order;

(ii) Filing with the Office one or more certificates of insurance evidencing insurance coverage by one or more insurers under a currently effective

and properly endorsed policy or policies of insurance, applicable to licensed reentry activities, on terms and conditions and in amounts prescribed under this part, and specifying policy exclusions;

(iii) In the event of any policy exclusions or limitations of coverage that may be considered usual under § 450.19(c) of this part, or for purposes of implementing the Government's waiver of claims for property damage under 49 U.S.C. 70112(b)(2), certifying that insurance covering the excluded risks is not commercially available at reasonable cost; and

(iv) Submitting to the Office, for signature by the Department on behalf of the United States Government, the waiver of claims and assumption of responsibility agreement required by § 450.17(c) of this part, executed by the licensee and its customer.

(2) Certifications required under this section must be signed by a duly authorized officer of the licensee.

(d) Certificate(s) of insurance required under paragraph (c)(1)(ii) of this section must be signed by the insurer issuing the policy and accompanied by an opinion of the insurance broker that the insurance obtained by the licensee complies with the specific requirements for insurance set forth in this part and any applicable license order.

(e) The licensee must maintain, and make available for inspection by the Office upon request, all required policies of insurance and other documents necessary to demonstrate compliance with this part.

(f) In the event the licensee demonstrates financial responsibility using means other than insurance, as provided under § 450.9(f) of this part, the licensee must provide proof that it has met the requirements set forth in this part and in a license order issued by the Office.

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

§ 450.17 Reciprocal waiver of claims requirements.

(a) As a condition of each reentry license, the licensee shall comply with reciprocal waiver of claims requirements as set forth in this section.

(b) The licensee shall implement reciprocal waivers of claims with its contractors and subcontractors, its customer(s) and the customer's contractors and subcontractors, and the launch licensee and its contractors and subcontractors and customers, under which each party waives and releases claims against the other parties to the waivers and agrees to assume financial responsibility for property damage it sustains and for bodily injury or property damage sustained by its own employees, and to hold harmless and indemnify each other from bodily injury or property damage sustained by its employees, resulting from reentry activities, including licensed launch activities associated with a particular reentry, regardless of fault.

(c) For each licensed reentry in which the U.S. Government, its agencies, or its contractors and subcontractors is involved in licensed reentry activities or licensed launch activities associated with a particular reentry, or where property insurance is required under § 440.9(d) of this subchapter or § 450.9(d), the Federal Aviation Administration of the Department of Transportation, the licensee, and its customer shall enter into a reciprocal waiver of claims agreement in the form set forth in appendix B to this part or the satisfies its requirements.

(d) The reentry licensee and its customer, the launch licensee and its customer, and the Federal Aviation Administration of the Department of Transportation on behalf of the United States and its agencies but only to the extent provided in legislation, must agree in any waiver of claims agreement required under this part to indemnify another party to the agreement from claims by the indemnifying party's contractors and subcontractors arising out of the indemnifying party's failure to implement properly the waiver requirement.

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

§ 450.19 United States payment of excess third-party liability claims.

(a) The United States pays successful covered claims (including reasonable expenses of litigation or settlement) of a third party against the licensee, the

customer, and the contractors and subcontractors of the licensee and the customer, and the employees of each involved in licensed reentry activities, the licensee, customer and the contractors and subcontractors of each involved in licensed launch activities associated with a particular reentry, and the contractors and subcontractors of the United States and its agencies, and their employees, involved in licensed reentry activities and licensed launch activities associated with a particular reentry, to the extent provided in an appropriation law or other legislative authority providing for payment of claims in accordance with 49 U.S.C. 70113, and to the extent the total amount of such covered claims arising out of any particular reentry:

(1) Exceeds the amount of insurance required under § 450.9(b); and

(2) Is not more than \$1,500,000,000 (as adjusted for inflation occurring after January 1, 1989) above that amount.

(b) Payment by the United States under paragraph (a) of this section shall not be made for any part of such claims for which bodily injury or property damage results from willful misconduct by the party seeking payment.

(c) The United States shall provide for payment of claims by third parties for bodily injury or property damage that are payable under 49 U.S.C. 70113 and not covered by required insurance under § 450.9(b), without regard to the limitation under paragraph (a)(1) of this section, because of an insurance policy exclusion that is usual. A policy exclusion is considered usual only if insurance covering the excluded risk is not commercially available at reasonable rates. The licensee must submit a certification in accordance with § 450.15(c)(1)(iii) of this part for the United States to cover the claims.

(d) Upon the expiration of the policy period prescribed in accordance with § 450.11(a), the United States shall provide for payment of claims that are payable under 49 U.S.C. 70113 from the first dollar of loss up to \$1,500,000,000 (as adjusted for inflation occurring after January 1, 1989).

(e) Payment by the United States of excess third-party claims under 49 U.S.C. 70113 shall be subject to:

(1) Prompt notice by the licensee to the Office that the total amount of claims arising out of licensed reentry activities exceeds, or is likely to exceed, the required amount of financial responsibility. For each claim, the notice must specify the nature, cause, and amount of the claim or lawsuit associated with the claim, and the party or parties who may otherwise be liable for payment of the claim;

(2) Participation or assistance in the defense of the claim or lawsuit by the United States, at its election;

(3) Approval by the Office of any settlement, or part of a settlement, to be paid by the United States; and

(4) Approval by Congress of a compensation plan prepared by the Office and submitted by the President.

(f) The Office will:

(1) Prepare a compensation plan outlining the total amount of claims and meeting the requirements set forth in 49 U.S.C. 70113;

(2) Recommend sources of funds to pay the claims; and

(3) Propose legislation as required to implement the plan.

(g) The Office may withhold payment of a claim if it finds that the amount is unreasonable, unless it is the final order of a court that has jurisdiction over the matter.

APPENDIX A TO PART 450—INFORMATION REQUIREMENTS FOR OBTAINING A MAXIMUM PROBABLE LOSS DETERMINATION FOR LICENSED REENTRY ACTIVITIES

Any person requesting a maximum probable loss determination shall submit the following information to the Office, unless the Office has waived a particular information requirement under 14 CFR 450.7(c):

I. GENERAL INFORMATION

A. Reentry mission description.

1. A description of mission parameters, including:

- a. Orbital inclination; and
 - b. Orbit altitudes (apogee and perigee).
- c. Reentry trajectories.

2. Reentry flight sequences.

3. Reentry initiation events and time for each event.

4. Nominal landing location, alternative landing sites and contingency abort sites.

5. Identification of landing facilities, (planned date of reentry), and reentry windows.

6. If the applicant has previously been issued a license to conduct reentry activities using the same reentry vehicle to the same reentry (site) facility, a description of any differences planned in the conduct of proposed activities.

B. Reentry Vehicle Description.

1. General description of the reentry vehicle including dimensions.

2. Description of major systems, including safety systems.

3. Description of propulsion system (reentry initiation system) and type of fuel used.

4. Identification of all propellants to be used and their hazard classification under the Hazardous Materials Table, 49 CFR 172.101.

5. Description of hazardous components.

C. Payload.

1. General description of any payload, including type (e.g., telecommunications, remote sensing), propellants, and hazardous components or materials, such as toxic or radioactive substances.

D. Flight Termination System/Flight Safety System.

1. Identification of any flight termination system (FTS) or Flight Safety System (FSS) on the reentry vehicle, including a description of operations and component location on the vehicle.

II. FLIGHT OPERATIONS

A. Identification of reentry site facilities exposed to risk during vehicle reentry and landing.

B. Identification of accident failure scenarios, probability assessments for each, and estimation of risks to Government personnel, individuals not involved in licensed reentry activities, and Government property, due to property damage or bodily injury. The estimation of risks for each scenario shall take into account the number of such individuals at risk as a result of reentry (flight) and landing of a reentry vehicle (on-range, off-range, and down-range) and specific, unique facilities exposed to risk. Scenarios shall cover the range of reentry trajectories for which authorization is sought in the license application.

C. On-orbit risk analysis assessing risks posed by a reentry vehicle to operational satellites during reentry.

D. Reentry risk analysis assessing risks to Government personnel and individuals not involved in licensed reentry activities as a result of inadvertent or random reentry of the launch vehicle or its components.

E. Nominal and 3-sigma dispersed trajectories in one-second intervals, from reentry initiation through landing or impact. (Coordinate system will be specified on a case by case basis)

F. Three-sigma landing or impact dispersion area in downrange (\pm) and crossrange (\pm)

measured from the nominal, and contingency landing or impact target. The applicant is responsible for including all significant landing or impact dispersion constituents in the computations of landing or impact dispersion areas. The dispersion constituents should include, but not be limited to: variation in orbital position and velocity at the reentry initiation time; variation in re-entry initiation time offsets, either early or late; variation in the bodies' ballistic coefficient; position and velocity variation due to winds; and variations in re-entry retro-maneuvers.

G. Malfunction turn data (tumble, trim) for guided (controllable) vehicles. The malfunction turn data shall include the total angle turned by the velocity vector versus turn duration time at one second interval; the magnitude of the velocity vector versus turn duration time at one second intervals; and an indication on the data where the re-entry body will impact the earth, or breakup due to aerodynamic loads. A malfunction turn data set is required for each malfunction time. Malfunction turn start times shall not exceed four-second intervals along the trajectory.

H. Identification of debris casualty areas and the projected number and ballistic coefficient of fragments expected to result from each failure mode during reentry, including random reentry.

III. POST-FLIGHT PROCESSING OPERATIONS

A. General description of post-flight ground operations including overall sequence and location of operations for removal of vehicle and components and processing equipment from the reentry site facility and for handling of hazardous materials, and designation of hazardous operations.

B. Identification of all facilities used in conducting post-flight processing operations.

C. For each hazardous operation:

1. Identification of location where each operation is performed, including each building or facility identified by name or number.

2. Identification of facilities adjacent to location where each operation is performed and exposed to risk, identified by name or number.

3. Maximum number of Government personnel and individuals not involved in licensed reentry activities who may be exposed to risk during each operation. For Government personnel, identification of his or her employer.

4. Identify and provide reentry site facility policies or requirements applicable to the conduct of operations.

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

APPENDIX B TO PART 450—AGREEMENT FOR WAIVER OF CLAIMS AND ASSUMPTION OF RESPONSIBILITY

This Agreement is entered into this ____ day of _____, by and among [Licensee] (the "Licensee"), [Customer] (the "Customer"), and the Federal Aviation Administration of the Department of Transportation, on behalf of the United States Government (collectively, the "Parties"), to implement the provisions of §450.17(c) of the Commercial Space Transportation Licensing Regulations, 14 CFR Ch. III (the "Regulations").

In consideration of the mutual releases and promises contained herein, the Parties hereby agree as follows:

1. Definitions

Contractors and Subcontractors means entities described in §450.3 of the Regulations, 14 CFR 450.3.

Customer means the above-named Customer on behalf of the Customer and any person described in §450.3 of the Regulations, 14 CFR 450.3.

License means License No. _____ issued on _____, by the Associate Administrator for Commercial Space Transportation, Federal Aviation Administration, Department of Transportation, to the Licensee, including all license orders issued in connection with the License.

Licensee means the Licensee and any transferee of the Licensee under 49 U.S.C. Subtitle IX, ch. 701.

United States means the United States and its agencies involved in Licensed Activities.

Except as otherwise defined herein, terms used in this Agreement and defined in 49 U.S.C. Subtitle IX, ch. 701—Commercial Space Launch Activities, or in the Regulations, shall have the same meaning as contained in 49 U.S.C. Subtitle IX, ch. 701, or the Regulations, respectively.

2. Waiver and Release of Claims

(a) Licensee hereby waives and releases claims it may have against Customer and the United States, and against their respective Contractors and Subcontractors, for Property Damage it sustains and for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault.

(b) Customer hereby waives and releases claims it may have against Licensee and the United States, and against their respective Contractors and Subcontractors, for Property Damage it sustains and for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault.

(c) The United States hereby waives and releases claims it may have against Licensee and Customer, and against their respective

Contractors and Subcontractors, for Property Damage it sustains, and for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault, to the extent that claims it would otherwise have for such damage or injury exceed the amount of insurance or demonstration of financial responsibility required under sections 440.9(c) and (e) or sections 450.9(c) and (e), respectively, of the Regulations, 14 CFR 440.9(c) and (e) or 14 CFR 450.9(c) and (e).

3. Assumption of Responsibility

(a) Licensee and Customer shall each be responsible for Property Damage it sustains and for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault. Licensee and Customer shall each hold harmless and indemnify each other, the United States, and the Contractors and Subcontractors of each Party, for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault.

(b) The United States shall be responsible for Property Damage it sustains, and for Bodily Injury or Property Damage sustained by its own employees, resulting from Licensed Activities, regardless of fault, to the extent that claims it would otherwise have for such damage or injury exceed the amount of insurance or demonstration of financial responsibility required under §§440.9(c) and (e) or §§450.9(c) and (e), respectively, of the Regulations, 14 CFR 440.9(c) and (e) or 14 CFR 450.9(c) and (e).

4. Extension of Assumption of Responsibility and Waiver

(a) Licensee shall extend the requirements of the waiver and release of claims, and the assumption of responsibility, hold harmless, and indemnification, as set forth in paragraphs 2(a) and 3(a), respectively, to its Contractors and Subcontractors by requiring them to waive and release all claims they may have against Customer and the United States, and against the respective Contractors and Subcontractors of each, and to agree to be responsible, for Property Damage they sustain and to be responsible, hold harmless and indemnify Customer and the United States, and the respective Contractors and Subcontractors of each, for Bodily Injury or Property Damage sustained by their own employees, resulting from Licensed Activities, regardless of fault.

(b) Customer shall extend the requirements of the waiver and release of claims, and the assumption of responsibility, hold harmless, and indemnification, as set forth in paragraphs 2(b) and 3(a), respectively, to its Contractors and Subcontractors by requiring them to waive and release all claims they

may have against Licensee and the United States, and against the respective Contractors and Subcontractors of each, and to agree to be responsible, for Property Damage they sustain and to be responsible, hold harmless and indemnify Licensee and the United States, and the respective Contractors and Subcontractors of each, for Bodily Injury or Property Damage sustained by their own employees, resulting from Licensed Activities, regardless of fault.

(c) The United States shall extend the requirements of the waiver and release of claims, and the assumption of responsibility as set forth in paragraphs 2(c) and 3(b), respectively, to its Contractors and Subcontractors by requiring them to waive and release all claims they may have against Licensee and Customer, and against the respective Contractors and Subcontractors of each, and to agree to be responsible, for any Property Damage they sustain and for any Bodily Injury or Property Damage sustained by their own employees, resulting from Licensed Activities, regardless of fault, to the extent that claims they would otherwise have for such damage or injury exceed the amount of insurance or demonstration of financial responsibility required under §§440.9(c) and (e) or §§450.9(c) and (e), respectively, of the Regulations, 14 CFR 440.9(c) and (e) or 14 CFR 450.9(c) and (e).

5. Indemnification

(a) Licensee shall hold harmless and indemnify Customer and its directors, officers, servants, agents, subsidiaries, employees and assignees, or any or them, and the United States and its agencies, servants, agents, subsidiaries, employees and assignees, or any or them, from and against liability, loss or damage arising out of claims that Licensee's Contractors and Subcontractors may have for Property Damage sustained by them and for Bodily Injury or Property Damage sustained by their employees, resulting from Licensed Activities.

(b) Customer shall hold harmless and indemnify Licensee and its directors, officers, servants, agents, subsidiaries, employees and assignees, or any of them, and the United States and its agencies, servants, agents, subsidiaries, employees assignees, or any of them, from and against liability, loss or damage arising out of claims that Customer's Contractors and Subcontractors, or any person on whose behalf Customer enters into this Agreement, may have for Property Damage sustained by them and for Bodily Injury or Property Damage sustained by their employees, resulting from Licensed Activities.

(c) To the extent provided in advance in an appropriations law or to the extent there is enacted additional legislative authority providing for the payment of claims, the United

States shall hold harmless and indemnify Licensee and Customer and their respective directors, officers, servants, agents, subsidiaries, employees and assignees, or any of them, from and against liability, loss or damage arising out of claims that Contractors and Subcontractors of the United States may have for Property Damage sustained by them, and for Bodily Injury or Property Damage sustained by their employees, resulting from Licensed Activities, to the extent that claims they would otherwise have for such damage or injury exceed the amount of insurance or demonstration of financial responsibility required under § 440.9(c) and (e) or § 450.9(c) and (e), respectively, of the Regulations, 14 CFR 440.9(c) and (e) or 14 CFR 450.9(c) and (e).

6. Assurances Under 49 U.S.C. 70112(e)

Notwithstanding any provision of this Agreement to the contrary, Licensee shall hold harmless and indemnify the United States and its agencies, servants, agents, employees and assignees, or any of them, from and against liability, loss or damage arising out of claims for Bodily Injury or Property Damage, resulting from Licensed Launch Activities, regardless of fault, except to the extent that: (i) As provided in section 7(b) of this Agreement, claims result from willful misconduct of the United States or its agents; (ii) claims for Property Damage sustained by the United States or its Contractors and Subcontractors exceed the amount of insurance or demonstration of financial responsibility required under § 440.9(e) or § 450.9(e) of the Regulations (14 CFR 440.9(e) or 450.9(e)); (iii) claims by a Third Party for Bodily Injury or Property Damage exceed the amount of insurance or demonstration of financial responsibility required under § 440.9(c) or § 450.9(c) of the Regulations (14 CFR 440.9(c) or 450.9(c)), and do not exceed \$1,500,000,000 (as adjusted for inflation after January 1, 1989) above such amount, and are payable pursuant to the provisions of 49 U.S.C. 70113 and § 440.19 or § 450.19 of the Regulations (14 CFR 440.19 or 450.19); or (iv) Licensee has no liability for claims exceeding \$1,500,000,000 (as adjusted for inflation after January 1, 1989) above the amount of insurance or demonstration of financial responsibility required under § 440.9(c) or § 450.9(c) of the Regulations (14 CFR 440.9(c) or 450.9(c)).

7. Miscellaneous

(a) Nothing contained herein shall be construed as a waiver or release by Licensee, Customer or the United States of any claim by an employee of the Licensee, Customer or the United States, respectively, including a member of the Armed Forces of the United States, for Bodily Injury or Property Damage, resulting from Licensed Activities.

(b) Notwithstanding any provision of this Agreement to the contrary, any waiver, release, assumption of responsibility or agreement to hold harmless and indemnify herein shall not apply to claims for Bodily Injury or Property Damage resulting from willful misconduct of any of the Parties, the Contractors and Subcontractors of any of the Parties, and in the case of Licensee and Customer and the Contractors and Subcontractors of each of them, the directors, officers, agents and employees of any of the foregoing, and in the case of the United States, its agents.

(c) In the event that more than one customer is involved in Licensed Activities, references herein to Customer shall apply to, and be deemed to include, each such customer severally and not jointly.

(d) This Agreement shall be governed by and construed in accordance with United States Federal law.

In Witness Whereof, the Parties to this Agreement have caused the Agreement to be duly executed by their respective duly authorized representatives as of the date written above.

Licensee

By: _____
Its: _____

Customer

By: _____
Its: _____

Department of Transportation

By: _____
Its: _____

[Doc. No. FAA-1999-6265, 65 FR 56699, Sept. 19, 2000; 65 FR 80991, Dec. 22, 2000]

PARTS 451-459 [RESERVED]

PART 460—HUMAN SPACE FLIGHT REQUIREMENTS

Subpart A—Launch and Reentry with Crew

Sec.

- 460.1 Scope.
- 460.3 Applicability.
- 460.5 Crew qualifications and training.
- 460.7 Operator training of crew.
- 460.9 Informing crew of risk.
- 460.11 Environmental control and life support systems.
- 460.13 Smoke detection and fire suppression.
- 460.15 Human factors.
- 460.17 Verification program.
- 460.19 Crew waiver of claims against U.S. Government.
- 460.20-460.40 [Reserved]